

Climatological Data for October, 1909.
DISTRICT No. 5, UPPER MISSISSIPPI VALLEY.

GEORGE M. CHAPPEL, District Editor.

GENERAL CLIMATOLOGICAL CONDITIONS.

The weather during October was, on the whole, favorable for farm and other out-of-door operations, although it was somewhat cooler than usual; and, while there were long periods of rainy weather, the average precipitation was below the normal. The most striking features of the weather for the month were the severe freeze on the 12th and 13th and the snowstorm on the 11th and 12th.

Iowa records show that, during the past nineteen years, there have been five cooler Octobers, but there are no records of as low temperature during the first fifteen days of October as was registered this month on the 12th and 13th. The ground was frozen to such an extent that potatoes remaining in the ground were considerably damaged; cabbage and turnips were also injured, and many thousand bushels of apples were frozen on the trees. As there had been no killing frosts or freezing temperatures previously to the 12th, much of the vegetation was still green, and corn, though ripe, was not dry enough to withstand such a severe freeze without injury to its germinating qualities.

TEMPERATURE.

The average temperature was below the normal in all of the States in the district, the greatest deficiency being in Illinois and the least in North Dakota. The month opened with clear weather and high temperatures which continued until the 7th in North Dakota and until the 9th in southern Illinois. During this period the maximum temperature for the month was recorded at all stations, occurring generally on the 2d or 3d in southern and on the 6th, 7th, or 8th in northern portions of the district, and ranging from 83° to 97° over North Dakota, 74° to 89° over Minnesota, 74° to 86° over Wisconsin, 76° to 97° over Iowa, 89° to 94° over Missouri, 75° to 83° over Indiana, and from 76° to 95° over Illinois. From the 11th to the 28th the temperature was below the normal and most of the time the weather was unusually cold. The monthly minimum occurred generally on the 12th or 13th over the southern and on the 27th or 28th over the northern sections. Temperatures as low as zero were recorded in North Dakota on the 13th and one station reported 1° below zero on the 27th. In Minnesota the minimum temperature ranged from 7° in Millelacs County to 23° at Minneapolis on the 28th. In Wisconsin the minimum ranged from 9° in Douglas to 24° at Madison, Dane County, on the 28th. In Iowa the minimum ranged from 10° at Fayette, Fayette County, to 23° at several stations along the Mississippi River, on the 13th in the southern and on the 28th in the northern counties. In Missouri the minimum ranged from 20° in Pike County to 24° in Marion and Lewis counties on the 13th; in Indiana, from 22° in Jasper County to 24° in Starke County, on the 14th; in Illinois, from 13° in Carroll County on the 28th to 33° at Cairo, Alexander County, on the 13th. The monthly mean for the district, as shown by the records of 300 stations, was 47.2°, which is 2.3° below the normal. The highest monthly mean temperature was 59.5° at Cairo, Alexander County, Ill., and the lowest monthly mean was 39.5° at Granville, McHenry County, N. Dak. The highest temperature was 97° at Forman, Sargent County, N. Dak., on the 7th, and at Bloomfield, Davis County, Iowa, on the 2d; the lowest temperature reported was -1° at Hanna, Cavalier County, N. Dak., on the 27th; the average monthly maximum was 84° and the average monthly minimum was 17°; the greatest daily range of temperature was 56° at Mexico, Audrain County, Mo. The average of the greatest daily ranges was 40°.

PRECIPITATION.

The average total precipitation for the month was below the normal for the district, and for all the States in the district

except Missouri and Illinois, and the one reporting station in South Dakota. The first seven or eight days of the month were generally clear and dry, but from the 8th or 9th rainy weather prevailed in all sections until the 12th to the 13th, after which showery weather, alternating with fair days, prevailed until the 25th. With the exception of the 31st, the last six days were fair and pleasant. In North Dakota the precipitation was somewhat unevenly distributed, both geographically and throughout the month. The average was slightly more than one-fourth inch below the normal.

In Minnesota the precipitation varied from less than one inch in a number of counties, including portions of the Mississippi and Minnesota River watersheds to over 4 inches in the north-central counties, in the Lake of the Woods and Rainy River Drainage basins. In the northeastern counties, and in Washington and Ramsey counties, there was a considerable excess in precipitation; elsewhere there was a deficiency ranging from about one-half to over 2 inches. In Wisconsin the precipitation was light at all stations, and most of it fell on the 10th, 11th, 12th, and 21st. In Iowa the precipitation was generally below the normal over the northern two-thirds of the State and slightly above the normal over the southern third. In Missouri there was an excess of precipitation over the Mississippi and Chariton River basins. The average precipitation was above the normal in Illinois, although there was a deficiency at many stations on the Mississippi River watershed. Considerable of the precipitation fell in the form of snow on the 11th and 12th, especially in the northern part of the district; the amounts ranging from a trace over the southern and central section to 22 inches in northern Wisconsin and 13 inches in northern Minnesota. The snow remained on the ground in some localities in southern Wisconsin until the 20th. The average precipitation for the district, as shown by the records of 319 stations, was 1.87 inches, which is 0.32 inch below the normal. The greatest amount, 6.96 inches, occurred at Louisiana, Pike County, Mo.; and the least, a trace, at Dunseith, Rollete County, and Langdon, Cavalier County, N. Dak. The greatest amount in twenty-four hours, 2.55 inches, occurred at Hannibal, Marion County, Mo., on the 17th and 18th. Measurable precipitation occurred on an average of six days. There were no excessive daily or hourly amounts of precipitation reported; the largest daily amount reported was 2.31 inches at Bondette, in the Rainy River watershed, in Minnesota, on the 10th.

RIVER CONDITIONS.

The Minnesota, Mississippi, and Des Moines rivers were somewhat lower than usual; the stage of the latter at Des Moines ranged from 2.4 feet on the 1st of the month to 2.0 feet on the 31st. The Illinois River at Peoria, Ill., registered a stage of 9.5 feet on the 1st, continued about stationary until the 5th, after which it fell slowly until the 21st, when it reached a stage of 8.8 feet. It rose during the last nine days of the month to 9.6 feet on the 31st.

MISCELLANEOUS.

A storm of unusual violence for the season passed over central Illinois on the evening of the 22d. It showed tornadic characteristics at places. At Decatur, in Macon County, some buildings were demolished and trees uprooted. It also wrought considerable destruction in Morgan County. Shock corn was scattered and blown away, and standing corn badly twisted.

An auroral display was observed north of northern Iowa and Illinois on the 18th, and at some of the extreme northern stations on the 19th. The aurora on the 18th is said to have been very bright, the streamers, at times, reaching the zenith.

Weather.—The average number of clear days was 15; partly cloudy, 6; and cloudy, 10.

Wind.—Northwest winds prevailed.

RECLAMATION AND DRAINAGE WORK IN IOWA.

Iowa, being a prairie State, having sufficient moisture for agricultural needs, irrigation is not necessary; but there is, nevertheless, a vast amount of engineering work being done in the way of draining and reclaiming the river bottoms and flat lands, especially in the northern and western counties. River channels are being straightened to prevent the overflow of the bottom lands during periods of excessive rainfall and the resulting high stages of the rivers and creeks. The flat prairie lands are being tiled and ditched to facilitate the rapid flow off of the surplus moisture and to insure proper conditions for cultivation of the soil during the growing season. The expense of this work is not comparable with the amounts being expended in many of the irrigation schemes now under construction in some of the western States, but the results will add materially to the output of the agricultural products of the State as well as to increase the price of the land drained.

In reply to a letter from the District Editor, Mr. A. J. Lilly, Drainage Engineer and County Surveyor of Kossuth County, Iowa, says that he has under operation the draining of about 80,000 acres. The total length of the ditches, tile, and open work is about 250 miles, and the total cost will be \$650,000. The acreage affected is not all wet or swamp land, but is in the watershed and is more or less benefited by the improvement. Many other projects of similar characters are under construction in the State, reports of which will be given in future numbers of the MONTHLY WEATHER REVIEW.

IOWA STATE DRAINAGE, WATERWAYS, AND CONSERVATION COMMISSION.

The General Assembly of the State of Iowa passed an act in April, 1909, authorizing the establishment of a commission for the purpose of investigating the entire question of the relation of the State to its waters, its forests, its soils, and its minerals, and it was provided that the investigation shall include the following:

Article 1. The present condition of public drainage in Iowa and the benefits which can be derived by securing the best of drainage engineering

practice, the most economical administration of drainage projects, and a more economical method of financing at lower rates of interest, and show methods by which all of these benefits may be secured.

Article 2. The present condition of all overflow of flood plain lands of Iowa, showing losses due by floods in the destruction of farm crops, the losses due by destruction of property in cities, towns, and built-up districts, the losses due by the withdrawal from crop cultivation of such flooded lands, and recommending the proper methods of prevention of such flood conditions.

Article 3. The survey of at least one representative Iowa river to ascertain the available dam sites and the potential water power, and to report the best method of procedure to bring about development of the water powers of the State, at the same time retaining the ultimate control of the water supply as a property of the State.

Article 4. To cooperate with the United States Survey, provided by act of Congress, and investigate the possibilities of navigation upon the rivers or upon adjoining lands by canal, and to secure the aid of Government experts when practicable in the several matters investigated by this commission.

Article 5. The question of forests and their preservation and their culture in the State, and especially with reference to the influence of forests upon the flood conditions of the rivers and the erosion and waste of the soils.

Article 6. It is the clear intent and purpose of this bill that the close interrelation of the several phases of river development shall be shown, and the necessity for a broad comprehensive treatment of our rivers shall be studied and reported upon.

Article 7. The general question of the relation of the State to the preservation of the fertility of the Iowa soils.

Article 8. The general question of the wise and conservative development and use of the mineral resources of the State, especially with reference to the mining of coals.

Article 9. And the general question of the nature and condition of such lakes in Iowa as now belong to the State, the relation of lakes and streams to the preservation of such varieties of fish, birds, and native animals as are desirable, and the preservation of the peat beds which now belong to the State.

As provided by the law, the governor appointed seven competent men as commissioners who were enthusiastic in the work. Active operations were begun September 15, 1909, under Mr. George D. Dobson, a competent engineer, who has been appointed as secretary of the commission, and the work must be finished and a report made to the next General Assembly January 1, 1911.

Secretary Dobson, from whom the above facts were obtained, has promised to write articles, from time to time, for publication in the MONTHLY WEATHER REVIEW, describing what has been accomplished.

MONTHLY WEATHER REVIEW.

OCTOBER, 1909

TABLE 1.—Climatological data for October, 1909. District No. 5, Upper Mississippi Valley.

Stations.	Counties.	Elevation, feet.	Length of record, years.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.	Prevailing wind direction.	Observers.				
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmeted.	Number of rainy days, .01 inch or more.	Number of partly cloudy days.	Number of cloudy days.				
<i>North Dakota.</i>																				
Amenia.	Cass.	954	11	45.9	+ 1.6	90	7	16	28	51	1.42	- 0.01	0.38	0.0	3	17	4	10	RW.	
Bottineau.	Bottineau.	1,638	13	39.9	- 3.1	85	6	10	27	43	0.43	- 0.72	0.32	6.0	3	7	7	10	NW.	
Cando.	Towner.	1,458	7	41.0	.....	86	7	11	13	51	0.10	.....	0.10	T.	1	1	6	n.w.	
Crosby.	Williams.	3	41.6	.....	85	4	0	13	13	43	0.49	.....	0.20	2.0	4	18	7	n.w.	
Devils Lake.	Ramsey.	1,482	3	41.5	.....	87	6	9	27	34	0.21	.....	0.14	0.6	7	9	8	n.w.	
Donnybrook.	Ward.	1,760	9	42.8	.....	86	6	9	14	43	1.20	.....	1.10	1.0	0	10	12	n.w.	
Dunseith.	Rolette.	11	40.0	- 2.2	87	5	7	27	42	T.	- 0.67	.....	T.	T.	0	20	5	n.	
Edmore.	Ramsey.	1,524	3	39.7	.....	80	6	7	27	43	0.90	.....	0.30	4.0	5	14	6	n.	
Forman.	Sargent.	1,249	14	51.0	+ 6.1	97	7	14	13	46	1.74	+ 0.23	0.60	4	7	11	13	n.w.		
Grafton.	Walsh.	827	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	n.w.	
Granville.	McHenry.	1,504	2	39.5	.....	89 ^a	6	98	13	41 ^a	0.53	.....	0.46	0.5	3	.....	.....	.....	n.w.
Hamilton.	Pembina.	824	11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	n.w.	
Hannah.	Cavalier.	1,568	3	40.4	89 ^a	5	—	1	27	43	0.36	0.30	0.0	3	1	17	2	12
Hansboro.	Towner.	1	40.8	.....	87	6	2	27	41	0.20	.....	0.20	T.	1	16	3	13	n.w.	
Hillsboro.	Trail.	901	3	45.0	.....	88	6	15	28	37	0.73	.....	0.33	T.	0	20	3	15	
Lakota.	Nelson.	1,519	2	42.9	.....	88 ^a	5	17	27	43 ^a	0.80	.....	0.50	3.2	2	0	16	0	15
Langdon.	Cavalier.	1,615	13	43.1 ^b	.....	89 ^a	5	15	29	41	T.	.....	T.	T.	0	11	0	20	w.
Larimore.	Grand Forks.	1,134	13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. N. Taylor.	
Lisbon.	Ransom.	1,091	4	43.4	.....	90	6	12	28	51	1.43	.....	0.72	T.	5	10	5	18	n.w.
McKinney.	Ward.	1,640	14	41.2	- 0.4	86	6	8	13	47	0.75	+ 0.08	0.52	3.0	3	18	4	9	n.w.	
Manfred.	Wells.	1,605	7	42.6	.....	89	5*	9	12	41	0.87	.....	0.38	0.5	4	7	19	5	n.w.
Mayville.	Trail.	973	13	47.3	+ 2.2	89	6	20	13	41	0.45	- 1.03	0.45	0.0	1	11	0	20	s.	
Milnor.	Sargent.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	O. B. Jorgenson.	
Minot.	Ward.	1,557	10	42.5	- 2.1	86	4 ^c	10	13	46	1.03	+ 0.22	0.82	1.0	3	21	4	6	w.	
Minto.	Walsh.	820	15	43.1 ^b	+ 0.9	88 ^a	6	14 ^c	27	41	0.47	- 0.61	0.33	0.2	3	15	6	10	se.	
Oriska.	Barnes.	1,270	3	43.8	.....	88	6	14	13	52	0.63	.....	0.38	0.5	4	7	19	5	W. E. Williams.
Park River.	Walsh.	998	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	A. Heyward.	
Pembina.	Pembina.	789	10	39.8	- 2.0	83	8	8	30	37	0.62	- 0.42	0.32	T.	2	19	8	4	w.	
Portal.	Ward.	1,954	14	43.4	- 1.6	90	6	13	13 ^c	37	1.98	+ 0.28	0.69	T.	5	11	10	10	se.	
Power.	Richland.	1,030	16	43.4	.....	88	6	10	13	59	0.41	0.0	0.41	0.0	1	25	6	0	n.w.
Pratt.	McHenry.	4	44.8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	B. Bagley.	
Towner.	do.	1,475	2	43.4	- 0.3	86	7	10	27	40	0.45	- 0.99	0.36	T.	4	13	16	2	n.w.	
University.	Grand Forks.	830	17	43.4	.....	88	6	10	13	39	1.58	.....	1.18	T.	3	16	10	5	n.w.
Wahpeton.	Richland.	962	17	41.8	.....	88	5	14	27	41	1.28	.....	1.09	T.	6	20	3	8	n.w.
Walhalla.	Pembina.	966	4	44.8	.....	87	6	13	13	42	0.55	.....	0.38	0.9	2	12	3	8	n.w.
Westhope.	Bottineau.	1,471	15	42.1	- 1.0	89	6	9	27	45	0.27	- 0.27	0.20	T.	2	12	3	11	n.w.	
Willow City.	do.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	M. A. Ostby.	
Albert Lea.	Freeborn.	1,229	19	47.0	- 1.1	82	7	17	28	40	1.27	- 0.86	0.67	T.	2	7	16	8	n.w.	
Alexandria.	Douglas.	1,391	15	44.6	- 1.2	89	5 ^d	17	28	45	1.30	- 0.38	0.80	T.	4	15	1	15	n.w.	
Augus.	Polk.	870	7	43.4	.....	85	6	12	27	43	0.58	.....	0.18	0.0	6	12	2	17	n.w.
Bagley.	Clearwater.	3	42.5	.....	85	8	12	28	44	1.72	.....	0.80	T.	6	12	2	17	n.w.	
Baudette.	Beltrami.	42.0	.....	83	7	18	28	37	43	1.12	.....	2.31	2.3	7	9	4	18	n.w.	
Beardsley.	Big Stone.	1,090	16	45.8	- 0.8	89	6	13	13	39	1.99	+ 0.07	0.92	1.0	6	8	8	15	n.w.	
Beaulieu.	Mahnomen.	1,200	7	43.8	.....	85 ^a	6	14 ^c	28	32 ^c	0.92	.....	T.	.....	11 ^c	1 ^c	16 ^c	n.w.	
Bird Island.	Renville.	1,039	19	44.4	- 3.7	82	7	15	28	37	0.92	- 0.95	0.59	T.	6	12	6	12	n.w.	
Caledonia.	Houston.	753	23	46.5	- 1.3	79	7	18	13	35	1.74	- 0.04	0.85	T.	5	17	8	6	n.w.	
Campbell.	Wilkin.	1,179	16	46.0	- 2.2	74	8	20 ^c	28	38 ^c	2.07	- 0.62	0.75	T.	6	15	5	10	n.w.	
Cass Lake.	Cass.	984	3	43.2	.....	88	6	16	23	43	1.50	.....	1.00	0.2	7	11	3	17	se.
Collegeville.	Stearns.	1,282	4	43.3	- 3.6	80	7	19	28	31	1.67	- 1.39	0.44	T.	5	14	3	14	n.w.	
Crookston.	Polk.	863	19	43.4	- 0.4	85	6	15	27	33	0.81	- 0.99	0.30	0.5	6	16	3	12	s.	
Detroit.	Becker.	1,364	13	41.5	- 2.4	86	6	12	28	43	1.75	- 0.54	0.78	1.0	5	17	1	13	n.w.	
Fairmont, (near).	Martin.	575	23	46.5	- 1.3	79	7	18	13	35	1.74	- 0.04	0.85	T.	6	15	8	6	n.w.	
Faribault.	Rice.	1,003	21	46.3	- 3.6	81	7	15	28	36	1.97	- 0.86	1.22	T.	6	15	5	10	n.w.	
Farmington.	Dakota.	902	21	46.4	- 1.2	80	7	18	28	33	0.97	- 1.70	0.46	T.	3	13	4	14	n.w.	
Fergus Falls.	Ottertail.	1,210	17	44.4	- 1.8	82	6	18	12 ^c	24	1.26	- 0.44	0.49	0.5	9	10	12	9	n.w.	
Fort Ripley.	Morrison.	1,135	3	43.4	.....	85	7	8	28	42	1.14	.....	0.50	0.0	4	10	3	18	s.
Fosston.	Polk.	1,288	42.0	.....	84	6	14	28	39	2.13	.....	1.30	.....	1.30	6	14	1	16	n.w.
Glenooe.	McLeod.	1,006	13	47.2	.....	84	7	20	13	36	0.90	- 2.08	0.60	T.	2	10	11	10	n.w.
Grand Meadow.	Mower.	1,338	22	47.1	+ 0.4	83	6	15	28	41	1.37	- 1.20	0.62	0.5	4	12	9	10	n.w.	
Hallock.	Kitson.	815	10	42.7	- 1.0	85	6	13	27	42	0.53	- 0.67	0.25	T.	5	15	2	14	n.w.	
Halstead.	Norman.	870	3	44.4	.....	89	6	16	27 ^c	42	0.98	.....	0.33	0.2	5	6	5	11	n.w.
Hinckley.	Pine.	1,050	4	45.8 ^b	.....	81 ^a	7	21 ^c	12	43 ^c	1.30	.....	0.35	0.0	5	6	8	10	n.w.
International Falls.	Koociching.	1	43.4	.....	82 ^a	6	13	28	37	5.49	.....	2.00	4.0	8	10	5	16	n.w.	
Kellher.	Beltrami.	3	42.2	.....	82 ^a	6	13	28	39	4.07	.....	0.84	5.6	7	9	10	12	n.w.	
Lake Crystal.	Blue Earth.	5	50.4 ^b	.....	82 ^a	7	16 ^c	29	39 ^c	4.07	.....	0.84	5.6	7	9	10	12	n.w.	
Leech Lake Dam.	Cass.	1,300	21	42.3	- 0.5	81	6	14	28	41	2.35	+ 0.29	0.81	1.0	7	7	12	12	w.	
Litchfield.	Meeker.	1,129	1	45.3 ^b	.....	81 ^a	7	18	28	33 ^c	0.77	.....	0.28	T.	5	8	8	8	n.w.
Little Falls.	Morrison.	1,117	3	45.2	.....	83	7	15	28	33	0.77	.....	0.55	.....	3	10	9	13	n.w.
Long Prairie.	Todd.	1,299	17	44.0	- 1.2	85	7	11	28	48	0.80	- 1.56	0.55	.....	3	10	9	13	n.w.
Lynd (2).	Lyon.	17	45.6	- 2.3	86	6	17	13	48	1.14	- 0.75	0.95	T.	3	17	2	12	n.w.		
Mankato.	Blue Earth.	747	10	44.0	.....</td														

TABLE 1.—Climatological data for October, 1909. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Sky.	Prevailing wind direction.	Observers.	
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unmeted.	Number of rainy days of 1 inch or more.	Number of partly cloudy days.	Number of clear days.		
Minnesota—Cont'd.																			
St. Peter.	Nicollet.	840	16	48.4	-1.1	86	7	14	27	40	1.85	-0.79	1.05	T.	3	16	7	8	nw.
Sandy Lake Dam.	Aitkin.	1,234	16	43.6	-0.8	78	7	13	28	39	1.03	-1.26	0.75	T.	3	16	5	10	nw.
Shakopee.	Scott.	750	14	1	43.0	82	7	17	27	29	2.59	1.04	1.0	6	13	2	16	nw.	
State Sanitorium.	Cass.	694	4	1	43.0	82	7	17	27	29	2.08	1.02	0.2	4	16	2	13	nw.	
Stillwater ¹ .	Washington.	694	12	43.0	82	7	17	27	29	2.08	1.02	0.2	4	16	2	13	nw.		
Taylor's Falls.	Chisago.	662	17	50.5	81	7	14	28	34	40	1.85	-0.79	1.05	T.	3	16	7	8	nw.
Wabasha ^m .	Wabasha.	662	17	50.5	81	7	14	28	34	40	1.85	-0.79	1.05	T.	3	16	7	8	nw.
Warroad.	Roseau.	42.0	1	42.0	86	7	11	28	43	40	0.50	0.50	0.50	T.	3	10	6	11	w.
West Concord.	Dodge.	1,232	1	46.8	78	7	16	28	33	1.20	0.50	0.75	T.	3	14	8	11	nw.	
Willow River.	Pine.	1,048	11	43.2	-2.3	81	7	11	28	39	1.30	-2.06	0.65	1.0	7	15	8	8	nw.
Windom.	Cottonwood.	1,336	3	47.6	84	67	14	28	39	1.48	0.85	0.85	T.	3	9	12	10	nw.	
Winnebago ^g .	Faribault.	1,100	10	40.5	-0.2	84	7	19	13	50	1.69	-0.93	0.67	T.	4	18	5	8	se.
Winnibigoshish.	Itasca.	1,300	21	43.4	82	67	15	28	36	2.32	+0.37	0.81	0.5	7	13	5	12	nw.	
Winona.	Winona.	680	14	47.8	+0.1	81	7	18	28	29	1.24	-0.77	0.34	2.2	6	14	5	12	nw.
Worthington ^g .	Nobles.	970	14	45.8	-2.5	80	5	15	13	42	0.72	-1.49	0.65	T.	2	18	4	9	s.
Zumbrota.	Goodhue.	970	14	46.2 ^b	-2.3	81 ^b	7	14 ^b	28	40	0.90	-0.57	0.57	T.	3	16	5	10	nw.
South Dakota.																			
Millbank.	Grant.	1,143	20	44.4	-3.3	80	6	15	28	47	2.96	+1.38	2.10	0.2	4	14	6	11	nw.
Wisconsin.																			
Antigo.	Langlade.	1,489	14	43.4	-1.8	75	8	20	10 ^t	35	0.49	-0.34	0.5	3	15	4	12	w.	
Barron.	Barron.	1,115	16	43.4	-2.6	79	7	12	28	38	2.54	-0.30	1.60	3.5	5	11	12	nw.	
Beloit.	Rock.	750	19	46.4	-4.2	74	8	21	28	38	0.65	-1.58	0.50	0.0	2	10	5	16	w.
Brodhead.	Green.	812	11	47.8	-4.7	81	8	15	28	41	0.68	-1.62	0.43	0.0	4	19	9	3	sw.
Burnett.	Dodge.	880	5	45.2	82	7	20	28	36	0.63	-0.33	0.33	T.	3	13	3	15	nw.	
Delavan.	Walworth.	920	16	46.4	-1.3	78	7	17	28	32	4.05	-0.89	0.45	T.	5	15	5	11	nw.
Dodgeville.	Iowa.	1,116	10	47.6	-3.5	79	7	17	28	32	1.07	-1.10	0.74	T.	5	16	2	13	se.
Downing.	Dunn.	933	6	45.2	85	1	12	27	55	2.94	2.00	2.00	3	7	15	5	19	se.	
Fau Claire.	Eau Claire.	800	18	46.3	-2.4	81	7	10	28	37	2.63	-0.73	1.33	2.3	6	12	7	12	nw.
Ellsworth.	Pierce.	1,068	1	43.6	-1.5	82	7	10	28	42	3.87	+0.62	1.85	3.0	6	12	3	15	nw.
Glidden.	Ashwood.	1,519	10	45.0	-1.8	82	7	19	19	39	1.16	-0.88	0.71	4	14	5	12	nw.	
Grand Rapids.	Wood.	1,021	10	42.4	-2.4	83	7	10	28	41	3.03	+0.34	1.70	4.0	4	11	8	12	ne.
Grantburg.	Burnett.	1,095	18	44.6	-2.4	83	8	16	28	33	1.83	-0.47	0.73	4.0	5	14	6	11	se.
Hancock.	Waushara.	1,001	17	44.3	-4.3	76	8	15	28	37	1.09	-0.50	0.50	0.0	2	10	5	16	w.
Hathfield.	Jackson.	973	1	41.5	80	7	17	28	41	1.63	-0.20	0.20	2.6	10	11	5	15	se.	
Hayward.	Sawyer.	1,197	18	43.6	-1.5	82	7	10	28	42	3.87	+0.62	1.85	3.0	6	12	3	15	nw.
Hillsboro.	Vernon.	1,000	18	42.9	-5.2	79	7	12	28	42	1.75	-0.69	0.76	2.0	3	13	11	7	sw.
Koepenick.	Langlade.	1,683	41	41.0	-5.0	78	8	17	19	42	1.56	-1.83	0.54	0.6	7	13	6	14	s.
La Crosse.	La Crosse.	714	37	46.9	-3.8	79	7	18	28	30	1.30	-1.12	0.46	1.1	7	11	6	14	s.
Lake Mills.	Jefferson.	897	18	45.4	-4.5	79	8	18	28	38	0.67	-1.65	0.28	1.0	5	12	11	8	nw.
Lancaster.	Grant.	1,070	19	47.0	-2.4	80	7	18	28	35	1.03	-1.14	0.34	T.	5	12	11	8	se.
Long Lake.	Oneida.	1,592	1	41.5	80	7	17	28	41	1.63	-0.20	0.20	2.6	10	11	5	15	se.	
Madison.	Dane.	974	31	46.8	-3.3	77	8	24	28	30	0.91	-1.46	0.44	0.1	6	9	11	11	s.
Mather.	Junesau.	962	42.5	80	7	12	28	44	42	1.26	-0.52	0.52	T.	4	6	1	24	w.	
Mauston.	Clark.	882	13	45.2	-3.9	77	7	16	28	37	1.35	-1.34	0.75	2.0	5	12	9	10	se.
Meadow Valley.	Medford.	974	18	44.4	-3.7	81	7	14	19	49	1.41	-1.19	0.65	3.0	5	9	11	11	nw.
Medford ^a .	Taylor.	1,420	18	43.2	-2.8	78	7	20	19 ^t	40	2.05	-1.45	1.15	4.0	4	13	7	10	s.
Merrill.	Lincoln.	1,267	3	45.2	86	8	21	12	52	0.77	-0.21	1.0	8	13	5	15	w.		
Minocqua ^e .	Oneida.	1,004	5	44.6	75	7	21	27	30	1.04	-0.50	0.50	1.0	6	9	8	9	nw.	
Mondovi.	Dane.	733	1	45.9	80	7	15	28	40	1.04	-0.50	0.50	T.	6	17	4	10	sw.	
Mount Horeb.	Grant.	1,226	5	45.4	79	8	18	28	33	1.30	-0.40	0.40	T.	4	9	13	14	sw.	
Muscoda.	Clark.	666	43.0	83	8	12	19	45	49	0.96	-0.52	0.52	T.	4	9	13	14	sw.	
Neillsville.	New Richmond.	996	20	44.9	-1.9	82	7	18	19	45	1.92	-0.83	1.03	1.0	4	8	0	23	nw.
New Richmond.	St. Croix.	990	4	46.2	82	7	15	28	36	1.91	-0.50	0.50	T.	4	13	10	8	nw.	
Oscceola ^g .	Polk.	806	18	44.8	-2.0	83	7	12	28	42	2.20	+0.17	1.65	3.5	3	11	12	8	w.
Portage.	Columbia.	809	13	45.4	-4.8	79	3	19	28	34	0.56	-1.50	0.46	2.0	4	15	9	7	nw.
Prairie du Chien ^g .	Crawford.	690	22	40.0	-3.3	83	8	21	19 ^t	35	1.39	-1.03	0.44	T.	6	13	3	15	nw.
Prentice.	Price.	1,551	11	41.9	-2.6	80	7	18	19	45	2.45	-0.75	0.95	16.0	6	11	2	16	sw.
Rhineland.	Oneida.	1,550	4	43.1 ^b	80	7	20	23 ^t	28	1.15	-0.80	0.80	T.	7	8	7	16	sw.	
Sauk City.	Sauk.	753	1	46.7	80	8	14	28	43	0.80	-0.80	0.80	T.	1	19	7	5	w.	
Shullsburg.	Lafayette.	1,019	3	46.2	77	7	20	24	33	1.81	-0.80	0.80	T.	1	11	11	11	nw.	
Solon Springs.	Douglas.	1,083	2	42.2	83	7	9	28	44	2.41	-0.60	1.08	T.	6	15	10	6	s.	
Spooner.	Washburn.	1,104	14	44.9	-0.9	80	7	14	28	42	1.77	-0.82	0.82	T.	5	13	4	14	nw.
Stanley.	Chippewa.	1,082	5	45.3	82	8	18	28	42	1.77	-1.12	0.75	2.0	4	10	3	18	nw.	
Stevens Point.	Portage.	1,113	16	44.4	-3.6	79	7	16	19	43	1.56	-1.13	0.91	0.5	6	12	6	13	nw.
Valley Junction.	Monroe.	930	17	44.0	-4.5	80	7	14	19	42	1.81	-1.13	0.91	0.5	6	12	6	13	nw.
Viroqua.	Vernon.	1,412	18	46.3	-2.8	79	7	18	28	30	1.05	-1.58	0.34	2.0	7	15	5	11	se.
Vudesar ^e .	Villas.	1,600	1	40.6	80	6	19	28	41	1.66	-0.65	4.0	4.0	5	9	11	10	nw.	
Watertown ^g .	Jefferson.	824	17	44.6	-4.1	77	8	16	28	36	0.63	-1.38	0.34	T.	4	12	13	6	sw.
Waukesha (1).	Waukesha.	970	13	46.0	-4.8	78	9	20	28	43	0.62	-1.43	0.23	0.5	10	17	4	sw.	
Waukesha (2).	Boone.	864	1	46.0	-4.8	78	9	20	28	43	0.62	-1.43	0.23	1.0	4	10	17	4</td	

TABLE 1—Climatological data for October, 1909. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.						Precipitation, in inches.						Number of rainy days, 0.1 inch or more.	Number of partly cloudy days.	Number of cloudy days.	Prevailing wind direction.	Observers.
				Mean.	Departure from the normal.	Highest.	Date.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.	Greatest in 24 hours.	Total snowfall unashed.						
<i>Iowa—Cont'd.</i>																				
Des Moines.	Polk.	861	31	51.4	-1.1	89	2	20	13	39	2.89	+0.21	1.06	T.	7	13	5	13	se.	U. S. Weather Bureau.
De Soto.	Dallas.	866	8	52.1	.....	95	2	17	13	51	2.14	.....	0.62	T.	7	16	3	11	sw.	R. D. Minard.
Dows.	Wright.	1,142	8	48.4	.....	85	8	15	13†	43	2.13	.....	0.75	0.0	6	18	2	11	se.	G. R. Flett.
Dubuque.	Dubuque.	639	35	48.4	-3.6	79	2	23	28	43	2.03	-0.65	0.89	0.1	8	14	7	10	s.	U. S. Weather Bureau.
Earlham.	Madison.	6	52.8	.....	87†	3	18 ^b	12	38	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	George Phillips.
Elkader.	Clayton.	727	27	42.6	-6.8	86	2	12	23	50	1.46	-1.18	0.85	0.0	4	11	9	n.	Charles Reinecke.	
Elma.	Howard.	.....	.....	.....	.....	79	7	16	28	44	1.30	-0.70	0.50	T.	6	13	12	6	se.	H. A. Moore.
Estherville.	Emmet.	1,298	12	46.2	-2.6	84	7	16	28	44	1.47	-0.70	0.55	0.5	4	12	0	9	nw.	A. O. Peterson.
Fairfield.	Jefferson.	14	50.8	-1.6	91	2	19	13	47	3.32	+0.40	1.33	T.	8	15	3	9	nw.	R. M. McKenzie.	
Fayette.	Fayette.	1,003	18	46.7	0.0	81†	2†	10 ^b	28	42 ^a	1.05	-1.00	0.45	T.	7	20	2	9	sc.	R. Z. Latimer.
Forest City.	Winnebago.	1,220	14	47.2	-2.5	85	4	18	28	52	0.75	-1.55	0.40	T.	2	20	2	9	sw.	J. A. Peters.
Fort Dodge.	Webster.	1,126	8	49.1	-3.2	88	2	18	13†	51	1.34	.....	0.75	T.	6	16	11	10	se.	J. F. Monk.
Fort Madison.	Lee.	516	59	.....	.....	.....	.....	.....	.....	3.51	+0.89	1.17	T.	6	10	11	10	s.	Miss L. A. McCready.	
Gilman.	Marshall.	1,052	9	.....	.....	.....	.....	.....	.....	3.49	.....	1.68	T.	7	10	11	10	nw.	J. L. Wylie.	
Grand Meadow.	Clayton.	1,180	17	46.6	-2.6	78	7	19	28	34	1.81	-0.66	0.76	T.	6	10	11	10	nw.	F. L. Williams.
Greene.	Butler.	9	47.9	.....	.....	84	2	16	28	40	1.70	.....	0.93	T.	6	8	12	11	c.	J. L. Cole.
Grinnell.	Powershiek.	1,023	16	51.2	+0.5	90	2	16	13	43	3.37	+0.90	1.38	T.	6	17	3	11	se.	D. W. Brainard.
Grundy Center.	Grundy.	970	17	48.2	-3.6	83	7	17	28	40	1.93	-0.54	1.27	T.	4	17	5	9	nw.	J. B. Calderwood.
Guthrie Center.	Guthrie.	1,077	13	49.9	-2.5	85	2	16	13	37	2.52	+0.25	0.58	T.	10	17	2	12	sw.	D. G. Beardsey.
Hampton.	Franklin.	1,155	18	49.2	-1.6	89	2	18	13†	43	2.64	+0.21	1.20	0.0	7	13	11	7	nw.	E. C. Grenelle.
Humboldt.	Humboldt.	1,095	17	49.8	-0.2	82	2†	17	13	36	1.37	-0.52	0.88	T.	4	22	1	9	nw.	Henry S. Wells.
Independence.	Buchanan.	921	43	47.6	-1.6	84	2†	16	28	40	0.48	-1.83	0.17	T.	4	21	2	12	se.	George Donohoe.
Indiana.	Warren.	969	17	52.3	-1.4	89	2†	20	13	37	2.45	+0.35	0.88	0.1	8	12	7	12	sw.	John L. Tilton.
Iowa City.	Johnson.	633	49	48.0	-3.1	84	2	18	13†	48	1.59	-1.19	0.94	T.	4	17	2	12	nw.	Arthur G. Smith.
Iowa Falls.	Hardin.	1,170	15	46.5	-3.2	82	2	16	28	54	1.82	-0.33	0.68	T.	6	22	0	9	nw.	J. B. Parmelee.
Jefferson.	Greene.	50.5	.....	.....	.....	89	2	16	13	42	2.33	.....	0.65	T.	5	17	7	7	sc.	G. W. Jackson.
Keokuk.	Lee.	547	37	52.4	-2.1	88	3	23	13	35	4.48	+1.99	1.45	0.5	10	14	9	8	sw.	U. S. Weather Bureau.
Kenoshaqua.	Van Buren.	644	16	49.3	-5.5	89	3	20	13†	52	2.31	+0.47	1.12	T.	8	6	14	11	se.	J. H. Landes.
Knoxville.	Marion.	920	12	52.2	-1.5	87	2	20	13	39	2.54	+0.12	0.83	T.	6	12	14	5	se.	Casey & Belville.
Lacona.	Warren.	9	.....	.....	.....	.....	.....	.....	.....	3.01	.....	1.15	.....	.....	.....	.....	.....	.....	J. B. Alter.	
Le Claire.	Scott.	576	.....	.....	.....	.....	.....	.....	.....	2.26	+0.37	1.18	T.	5	17	4	10	sw.	Miss Margaret T. Disney.	
Marshalltown.	Marshall.	947	16	48.2	-4.1	89	3	17	13	47	1.97	-0.41	0.95	T.	6	17	4	10	s.	Ralph B. Reasoner.
Mason City.	Cerro Gordo.	1,132	11	46.5	-3.1	80	7	15	28	40	1.55	-0.57	0.65	T.	6	14	3	9	sc.	J. S. Mills.
Mount Pleasant.	Henry.	729	26	50.9	-0.6	82	3	20	13	34	2.76	+0.88	0.88	T.	5	19	3	9	sw.	J. W. Edwards.
Muscatine.	Muscatine.	49	.....	.....	.....	.....	.....	.....	.....	1.68	-1.36	0.73	T.	5	17	5	9	se.	William Molls.	
New Hampton.	Chickasaw.	1,169	11	46.3	-4.5	76	7	17	28	35	1.04	-1.22	0.66	T.	6	17	5	9	se.	A. F. Kemman.
Newton.	Jasper.	944	19	51.2	-0.6	82	2	20	13	36	1.41	-0.32	0.60	T.	3	18	3	10	se.	J. P. Beatty.
Northwood.	Worth.	1,222	12	46.6	-3.1	82	2	17	28	40	1.57	-1.03	0.80	T.	4	16	6	9	nw.	Charles H. Dwelle.
Olin.	Jones.	760	11	49.0	-2.2	82	2	19	28	38	1.34	-1.07	1.16	0.0	5	19	4	8	w.	C. M. Miles.
Osage.	Mitchell.	1,184	17	48.5	+1.1	82	2	16	28	39	2.09	-0.33	1.29	T.	3	13	5	13	nw.	A. D. Bundy.
Oakaloosa.	Mahaaka.	843	24	50.8	-1.3	85	2	20	13	37	2.78	+0.58	1.13	T.	6	18	1	12	nw.	Joseph Boyd.
Ottumwa.	Wapello.	649	11	50.4	-4.6	86	2	21	13	31 ^a	.....	.....	.....	.....	.....	.....	.....	.....	se.	John H. Ver Steeg.
Pella.	Marion.	877	6	51.0	.....	89	2	11	13	30	2.52	.....	1.14	0.2	5	19	2	10	nw.	J. A. Harvey.
Perry.	Dallas.	975	7	49.8	.....	84	2	17	13	30	2.66	.....	0.84	T.	7	18	9	11	sc.	J. S. Smith.
Plover.	Pocahontas.	1,426	12	48.3	-2.3	86	7	15	13	45	2.13	-0.39	1.00	T.	5	18	6	7	s.	F. E. Hronek.
Pocahontas.	.....	4	47.8	.....	84	7	15	13	43	1.04	.....	0.56	0.2	6	19	4	8	s.	Arthur Betts.	
Ridgeway.	Winneshiek.	1,215	10	49.2	-3.2	87	2	18	28	40	1.50	-1.67	0.51	T.	7	17	5	9	s.	C. M. Randall.
Rockwell City.	Calhoun.	12	49.0	-3.0	84	2	17	13	33	1.41	-0.88	0.51	T.	5	16	3	12	nw.	E. N. Harvey.	
Sac City.	Sac.	1,278	26	49.6	-0.4	84	2	20	13	39	4.09	+0.02	0.73	T.	6	20	6	7	sw.	R. D. Minard.
St. Charles.	Madison.	1,070	7	53.0	.....	91	2†	20	13	39	2.58	+0.02	0.73	T.	7	8	17	6	sw.	J. T. Parker.
Sigourney.	Keokuk.	877	12	50.9	-3.4	85	2	18	13	39	2.58	+0.02	0.73	T.	9	16	6	9	s.	C. L. Bewick.
Stockport.	Van Buren.	6	49.5	.....	90	2	14	13	48	2.49	.....	0.93	T.	5	20	3	8	s.	S. B. Fracker.	
Storm Lake.	Buena Vista.	1,440	12	50.3	-2.0	85 ^a	2	23	12	36†	1.60	-0.09	0.60	T.	4	6	15	10	se.	F. K. Gregg.
Stuart.	Guthrie.	1,216	10	50.6	-2.3	83	2	21	13	31	3.18	+1.16	1.13	T.	6	21	1	9	se.	I. F. Ciger.
Toledo.	Cedar.	807	14	50.2	-1.9	84	2	17	13	39	3.55	+1.51	1.60	T.	3	18	3	10	nw.	G. W. Schofield.
Wapello.	Tama.	856	14	50.2	-3.7	81	2†	23	13	31	2.40	+0.53	0.69	T.	6	19	6	8	nw.	Wm. A. Cook.
Washington.	Louisa.	588	10	50.7	-3.7	82	2	19	13	43	1.78	-0.26	0.88	T.	7	16	10	5	se.	M. L. Newton.
Waterloo.	Washington.	769	27	51.0	-1.2	84	2	18	28	43	1.42	-0.33	0.68	T.	6	14	4	9	se.	Samuel F. Fott.
Waukeen.	Black Hawk.	862	25	48.9	-1.3	84	2	18	28	43	2.88	.....	0.78	T.	8	14	9	8	nw.	H. S. Hoover.
Waverly.	Dallas.	1,030	5	51.3	-1.5	82	2	18	13	38	1.22	-1.09	0.59	T.	7	12	7	12	nw.	C. D. Carpenter.
Webster City.	Bremner.	3	50.6	-3.3	85	2	16	13	43	1.51	-0.71	0.52	T.	3	15	7	9	se.	Joseph Dorweiler.	
Hamilton.	Palo Alto.	1,197	14	48.5	-0.4	82	2	16	13	38	1.13	-0.71	0.52	T.	4	15	6	11	nw.	F. P. Butler.
West Bend.	Hardin.	1,036	10	49.4	-2.2	84	2	18	28	39	1.28	-1.04	0.93	T.	3	16	4	11	se.	William Lang.
Whitten.	Muscatine.	683	13	51.0	-1.5	81	2	19	13	34	1.97	-0.11	0.93	T.	4	25	3	3	w.	Robert S. Cooper.
Winterset.	Madison.	1,129	17	51.0	-2.3	85	2	20	13	35	2.32	+0.08	1.04	T.	8	15	4	12	nw.	Orley Reese.
Zearing.	Story.	1,000	29	49.1	.....	88	2	15	12	43	2.16	.....	1.6							

TABLE 1.—Climatological data for October, 1909. District No. 5—Continued.

Stations.	Counties.	Elevation, feet.	Length of record, yrs.	Temperature, in degrees Fahrenheit.					Precipitation, in inches.					Sky.	Prevailing wind direction.	Observers.		
				Mean.	Departure from the normal.		Highest.	Lowest.	Date.	Greatest daily range.	Total.	Departure from the normal.		Greatest in 24 hours.	Total snowfall unmetted.			
					High.	Low.						Date.	Total.	Greatest in 24 hours.				
<i>Illinois—Cont'd.</i>																		
Colchester.....	McDonough.....	694	7	46.6	76	34	17	28	33	0.79	0.45	T.	6	16	7	8 se.		
Dakota.....	Stephenson.....	929	11	50.7	83	33	23	13	41	3.59	+ 1.55	T.	7	20	2	9 se.		
Dekatur.....	Macon.....	685	17	47.6	3.9	81	21	28	38	2.42	+ 0.45	0.98	0.0	6	20	4	7 se.	
Dixon.....	Lee.....	725	19	57.6	0.2	93	3	27	13	41	0.84	- 1.08	0.42	0.0	4	19	2	3 sc.
Du Quoin.....	Perry.....	459	18	48.6	82	3	21	28	39	2.38	+ 0.70	1.58	T.	4	19	11	7 se.	
Dwight.....	Livingston.....	600	15	49.1	3.1	82	3	26	28	39	2.60	- 1.17	T.	9	16	6	9 se.	
Galva.....	Henry.....	842	17	48.6	4.3	82	3	26	28	39	2.60	- 1.17	T.	7	12	7	12 se.	
Greenville.....	Bond.....	635	26	53.7	2.7	86	3	27	13	37	4.54	+ 1.88	1.75	0.0	8	12	4	5 se.
Griggsville.....	Pike.....	650	22	52.6	3.2	86	3	23	13	34	4.36	+ 2.13	1.64	T.	8	17	9	5 se.
Halfway.....	Williamson.....	569	13	58.8	- 0.2	90	3	28	13	37	0.86	- 0.98	0.32	0.0	4	21	3	7 se.
Havana.....	Mason.....	475	18	52.2	4.7	84	3	24	13	37	3.13	+ 1.29	0.78	T.	7	16	12	3 sw.
Henry.....	Marshall.....	500	20	50.0	2.5	81	3	21	28	40	2.48	+ 0.48	1.15	T.	8	20	4	7 nw.
Hillsboro.....	Montgomery.....	675	14	54.2	- 3.1	90	3	25	13	40	3.79	+ 1.07	1.42	T.	5	14	2	15 nw.
Joliet.....	Will.....	541	17	48.7	- 3.3	80	3	24	14	36	1.68	- 0.18	1.15	T.	6	18	4	9 w.
Kalbawkee.....	Winnebago.....	730	19	47.5	- 3.6	88	3	20	28	40	0.84	- 1.78	0.38	T.	5	16	7	8 w.
Knoxville §.....	Knox.....	775	19	48.9	- 3.2	81	3	18	13	40	3.52	+ 1.24	1.50	T.	6	17	5	9 w.
La Grange.....	Cook.....	657	18	47.0	- 4.8	79	3	24	14	37	1.24	- 0.24	0.43	T.	4	17	7	7 sw.
La Harpe.....	Hancock.....	698	30	49.4	- 5.0	79	3	20	13	35	3.52	+ 1.02	1.63	T.	8	17	4	10 se.
Lanark.....	Carroll.....	833	18	46.6	- 3.5	82	3	13	28	47	1.04	- 0.44	0.84	T.	7	22	4	5 s.
La Salle.....	La Salle.....	536	33	49.4	- 2.5	82	3	24	28	36	1.53	- 1.05	1.18	T.	7	15	7	9 w.
Lincoln.....	Logan.....	482	20	50.1	- 4.7	82	3	23	13	43	3.10	+ 1.25	0.98	T.	7	14	9	8 sw.
Martinton.....	Iroquois.....	633	21	49.4	- 3.1	82	3	22	14	40	3.35	+ 1.23	1.55	T.	6	14	9	8 sw.
Mawoutah.....	St. Clair.....	425	18	55.7	- 0.9	90	3	23	13	46	3.22	+ 1.06	1.08	0.0	6	21	4	6 nw.
Minonk.....	Woodford.....	745	15	50.0	- 3.8	86	3	20	13	40	2.43	+ 0.91	1.05	T.	6	16	10	5 sw.
Monmouth.....	Warren.....	784	16	50.8	- 2.7	86	2	20	13	36	3.77	+ 2.00	1.67	T.	8	19	5	7 se.
Morrison.....	Whiteside.....	685	13	48.8	- 4.0	79	3	18	28	36	2.29	+ 0.25	0.85	T.	7	20	4	7 se.
Morrisonville.....	Christian.....	638	9	51.8	- 87	3	23	13	44	3.37	- 1.32	0.0	0	8	21	1	9 s.	
Mount Vernon.....	Jefferson.....	511	14	56.1	- 1.8	90	2	23	13	47	1.55	- 0.56	0.02	0.0	6	19	5	7 n.
Oregon.....	Ogle.....	702	48.3	80	29	79	3	19	28	36	1.00	- 0.60	0.0	0	3	17	4	10 w.
Ottawa.....	La Salle.....	500	23	49.8	- 3.2	83	8	23	28	42	1.71	- 0.40	0.61	T.	4	15	0	16 sw.
Pana.....	Christian.....	692	22	52.4	- 3.6	83	3	24	13	35	3.20	+ 0.78	1.14	0.0	6	22	3	6 nw.
Peoria.....	Peoria.....	600	33	49.8	- 2.2	82	8	22	13	37	3.59	+ 1.02	1.35	T.	10	15	7	9 s.
Pontiac.....	Livingston.....	546	7	50.8	- 84	8	23	13	40	2.33	- 1.49	0.26	0.2	7	11	5	15 sw.	
Riley.....	McHenry.....	956	50	47.1	- 1.6	78	8	17	28	39	0.72	- 1.49	0.26	0.2	7	9	12	10 sw.
Rockford.....	Winnebago.....	763	13	46.7	- 3.4	77	8	20	28	34	0.75	- 1.99	0.33	0.2	5	15	7	9 s.
Rushville.....	Schuylerville.....	670	8	51.8	- 3.4	86	3	23	13	32	2.92	- 0.85	0.85	T.	7	11	5	15 s.
St. Charles.....	Kane.....	700	12	48.2	- 3.6	81	8	21	14	42	0.90	- 0.92	0.38	T.	5	17	7	7 ne.
Springfield.....	Sangamon.....	644	23	51.8	- 2.8	86	3	26	13	33	2.76	+ 0.16	1.50	T.	9	14	9	8 w.
Springton.....	Macoupin.....	625	15	55.8	- 80	4	24	13	42	3.41	- 1.80	0.0	4	18	8	5 nw.		
Streator.....	La Salle.....	626	15	49.8	- 3.8	84	7	22	13	46	2.21	+ 0.76	1.15	T.	7	21	5	5 sw.
Sullivan.....	Moultrie.....	530	9	51.8	- 86	8	22	13	42	3.39	- 1.33	0.0	0	5	15	8	3 sw.	
Sycamore.....	De Kalb.....	855	28	46.6	- 3.5	82	8	19	28	43	1.19	- 1.36	0.70	T.	4	18	3	10 nw.
Tilden.....	Randolph.....	500	23	56.8	- 0.5	91	3	24	13	42	1.97	- 0.36	0.04	0.0	5	23	2	6 s.
Tuklwa.....	Bureau.....	798	14	49.4	- 3.0	80	8	20	13	33	2.56	+ 0.62	0.67	0.0	8	22	2	7 se.
Walnut.....	do.....	717	17	50.2	- 4.3	82	8	21	28	34	2.09	+ 0.48	1.17	0.3	8	17	5	9 w.
White Hall.....	Green.....	573	10	51.8	- 87	3	22	13	40	5.48	-	2.07	T.	8	18	2	11 w.	
Windsor.....	Shelby.....	681	10	51.5	- 1.4	88	3	21	13	46	2.76	+ 0.84	0.80	T.	9	15	5	11 s.
Winnebago.....	Winnebago.....	900	21	47.3	- 3.8	87	7	19	28	41	1.11	- 1.00	0.50	T.	6	19	4	8 w.
Yorkville.....	Kendall.....	584	21	46.9	- 3.2	80	8	19	14	43	1.41	- 0.90	1.20	T.	4	16	6	9 w.
Zion.....	Carroll.....	938	13							2.22	- 0.21	1.02	T.	7	18	5	8 w.	

* Precipitation included in that of the next measurement.

** Temperature extremes are from observed readings of the dry-bulb; means are computed from observed readings.

† Also on other dates.

‡ Separate dates of fall not recorded.

§ Data are from standard instruments not supplied by the U. S. Weather Bureau.

|| Instruments are read in the morning; the maximum temperature then read is charged to the preceding day, on which it almost always occurs.

¶ Estimated by observer.

||| Precipitation for the 24 hours ending on the morning when it is measured.

†† Precipitation is less than 0.01 inch rain or melted snow.

*, †, ‡, etc., indicate, respectively, 1, 2, 3, etc., days missing from the record.

Eli V. Kinsey.
Harold Leitzel.
Prof. J. H. Coonradt.
Mrs. E. E. Shaw.
G. H. Knetzger.
Edward O. Welsh.
Prof. F. U. White.
M. S. Oudyn.
George F. Neeland.
E. L. Hearn.
F. & C. Borgelt.
Dr. F. A. Powell.
Ira L. Woodward.
F. M. Muhlig.
George Stevens.
C. N. Butt.
Theodore P. Stelle.
Joseph M. Ray.
Miss Maud M. Harris.
C. W. Sibley.
U. S. Weather Bureau.
George Butterworth.
John West James.
Hosmer C. Porter.
H. F. Dyson.
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U. S. Weather Bureau.
William F. Schaefer.
Edward F. Sweetser.
C. A. Corbin.
Miss E. J. Davis.
James A. Caldwell.
F. I. Smucker.
O. C. Nusale.
Dr. R. A. Pritchett.
Herbert Rose.
Frank Osborn.
Herman A. Grimwood.
Robert F. Gilligley.

TABLE 2.—*Daily precipitation for October, 1909. District No. 5, Upper Mississippi Valley.*

TABLE 2.—*Daily precipitation for October, 1909. District No. 5—Continued.*

TABLE 2.—*Daily precipitation for October, 1909. District No. 5—Continued.*

TABLE 2.—*Daily precipitation for October, 1909. District No. 5—Continued.*

TABLE 3.—Maximum and minimum temperatures at selected stations, October, 1909. District No. 5, Upper Mississippi Valley.

Wisconsin.

TABLE 3.—*Maximum and minimum temperatures at selected stations, October, 1909. District No. 5—Continued.*

Date.	Illinois.																							
	Hannibal, Mo.			Laporte, Ind.			Cairo.			Greenville.			La Salle.			Mt. Vernon, Ill.			Peoria.			Springfield.		
	Max.	Min.	Max.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
1.	74	38	65	37	72	51	72	48	72	40	74	42	73	40	73	45	71	45	71	36				
2.	85	46	75	39	76	52	79	49	77	46	90	43	81	44	81	48	79	45	73	52	73	52	73	52
3.	89	59	74	50	88	56	86	49	76	53	86	51	78	52	86	60	78	52	86	60	78	52	78	52
4.	79	56	69	43	87	61	80	56	71	47	81	55	75	52	78	53	69	46	71	46	71	46	71	46
5.	77	52	70	42	80	59	75	50	69	45	80	52	73	46	72	47	70	43	70	43	70	43	70	43
6.	77	51	73	41	76	53	76	48	73	38	81	60	75	43	74	45	78	46	78	46	78	46	78	46
7.	80	52	74	40	80	51	81	51	80	44	83	62	80	47	79	48	80	48	80	48	80	48	80	48
8.	83	58	80	44	82	57	82	53	82	51	80	58	82	53	81	51	81	51	81	51	81	51	81	51
9.	69	53	78	50	74	64	71	60	74	58	73	51	70	59	71	60	80	50	80	50	80	50	80	50
10.	53	46	65	45	66	53	61	48	62	46	74	60	60	45	61	47	60	45	61	47	60	45	60	45
11.	49	34	48	36	62	41	53	37	49	33	58	43	51	32	50	35	48	36	50	35	48	36	50	36
12.	41	27	40	28	48	34	42	31	34	30	42	30	39	27	38	29	36	27	38	29	36	27	38	29
13.	45	24	45	34	62	33	55	27	43	25	64	23	40	22	45	26	42	25	45	26	42	25	45	25
14.	58	27	51	23	57	46	49	31	54	27	52	30	53	22	53	30	50	22	53	30	50	22	53	30
15.	62	34	47	30	68	43	60	36	50	35	60	36	55	31	57	38	42	39	57	38	42	39	57	39
16.	60	35	51	34	71	42	63	35	52	32	67	37	54	32	56	37	48	39	56	37	48	39	56	39
17.	50	43	51	30	79	57	54	43	51	35	64	42	48	34	46	42	52	34	46	42	52	34	46	34
18.	49	38	50	37	70	48	51	44	50	31	59	47	52	33	49	37	50	33	49	37	50	33	49	33
19.	54	36	55	31	62	46	55	38	54	27	59	40	55	28	55	32	55	32	55	32	55	32	55	32
20.	55	44	54	32	67	53	58	45	51	36	63	48	52	43	44	44	53	44	44	53	44	53	44	53
21.	73	49	65	41	78	61	69	52	68	51	75	49	69	48	71	49	60	48	71	49	60	48	71	49
22.	71	42	51	40	80	57	74	47	53	38	80	42	51	35	65	45	53	33	65	45	53	33	65	45
23.	45	39	44	34	70	45	54	41	46	38	60	43	46	36	47	38	42	36	47	38	42	36	47	38
24.	52	30	49	31	53	40	50	36	46	31	48	31	48	27	48	33	48	33	48	33	48	33	48	33
25.	63	43	53	29	62	38	61	35	56	35	68	35	57	33	61	37	56	33	61	37	56	33	61	37
26.	67	41	52	29	70	43	67	40	62	40	72	36	64	38	67	42	61	35	67	42	61	35	67	42
27.	58	36	52	37	60	47	58	40	53	32	69	41	56	34	56	38	49	30	56	38	49	30	56	38
28.	50	33	46	30	60	41	52	33	46	24	55	34	45	23	45	30	46	29	45	30	46	29	45	30
29.	71	40	43	25	68	40	62	35	58	32	77	32	60	34	62	33	56	28	56	28	56	28	56	28
30.	76	55	70	39	72	46	71	47	72	46	80	50	74	44	71	43	74	42	71	43	74	42	71	42
31.	76	60	75	45	75	55	75	48	76	53	78	45	76	54	76	51	75	50	75	50	75	50	75	50
Means.	64.2	42.6	58.7	36.0	70.2	48.8	64.4	43.0	60.0	38.7	69.2	43.0	60.9	38.6	62.0	41.7	59.2	35.4						